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No. 6.—ABSTRACT STATEMENT of Decrees passed in favour of Government in the years 1845-6 and 1846-7.

	Total Number and Value of Cases decreed in favour of Government up to 30th April.		Remaining unrealized on 1st May.		Pending on the file on 1st May.	
	No.	Amount.	No.	Amount.	No.	Amount.
		Rupees.		Rupees.		Rupees.
Revenue Department, 1845-6....	302	249,885	150	151,906	110	126,953
Do. do. 1846-7....	„	265,996	„	192,756	„	191,631
Customs, Salt, & Opium, 1845-6....	92	555,336	88	471,727	70	347,921
Salt Department, 1846-7....	„	596,662	„	498,588	„	498,571
Opium Department, 1846-7....	„	16,607	„	12,377	„	12,377
Abkaree, or Liquor Sale } 1846-7....	„	382	„	382	„	382
Department						

Additional Observations on the means of maintaining Troops in Health.
By Assistant-Surgeon EDWARD BALFOUR, Madras Army.

[Read before the Statistical Section of the British Association at Swansea,
10th August, 1848.]

In a paper which was read before the Statistical Society by Mr. Hume, M.P., in 1845, I endeavoured to show that in every country the native races were more healthy than strangers; and that, consequently, when our soldiers left their native land to serve abroad, they quitted the climate most conducive to their health and longevity.

In a subsequent paper I endeavoured to establish the fact, that the chief cause of this increased mortality existed in the climates of particular localities, which could frequently be avoided by removing the troops to some healthier site, at a short distance: and the facts adduced in support of these views were deemed so conclusive that, in one colony at least, the mode of distributing the European troops was altered, and a change introduced in the class of troops employed. I was of opinion, indeed, that there were no doubts left as to the chief source of sickness, or the best means of preventing its occurrence, until a few days ago; when in a pamphlet by an eminent statist, Colonel Sykes, I observed the following passages: “Why is the health of the European troops so universally inferior to that of the Native troops serving with them, whose health, in fact, is superior, or at least equal, to that of European troops in their own lands? I will not say that the question is absolutely solved by the reply, ‘Habits of life;’ but I will say, reasoning from analogy, that the reply goes a great way to solve it.” (Vital Statistics of the East India Armies in India, page 23.)

“The climate of India is less to blame than individuals; for, in case foreigners find the people of a country healthy they should, to a certain extent, conform to the habits of the natives to be healthy also.” (Ibid., page 25.)

No data are given in the pamphlet to support the opinion that “habits of life,” or “the quantity of spirits consumed,” are the chief causes of disease in India, although it is an opinion opposed to many

facts which have been brought forward, and to others which could now be adduced, and is moreover of a nature to produce much future evil by prolonging the loss of life, and the injury to the public finances that must always continue, while our time and exertions are being devoted solely to efforts to check intemperance, which, even if successful, can only palliate, but never remove, the evils that spring from climate. It may, likewise, by withdrawing attention from one great, and I believe the greatest, cause of sickness, the noxious influence of particular localities, tend to retard the day which I hope to see, when healthy sites having been selected for cantonments, the English soldier shall enjoy in India almost as good health as in his native country.

It would not be difficult to form an approximation to the actual loss which the service sustains from the intemperance of its soldiers, and the amount would be found to add only a small proportion to the deaths from climatorial diseases; while, on the other hand, the latter continue to appear in spite of the most temperate and regular habits, and defy every attempt at prevention, except that of withdrawing from the locality. There seems an impression, a very unjust one in my opinion, that a soldier is generally an intemperate character, but it is not found that other classes of our countrymen, not soldiers, enjoy an immunity from disease. What is the proportion of deaths, for example, amongst the civilians in India, the most intelligent, best paid, best lodged, and most independent servants of the Indian Government? they are certainly a highly temperate, if not an abstemious class of men, and although their duties are very laborious, they can generally take a few days rest when indisposed; and, therefore, if the climate of India is less to blame than individuals, we ought to find this class quite exempt from the high rates of mortality which the military present. But how stand the facts? Although the mortality in England amongst those insured in the Equitable Society, from 1801 to 1832, averaged only 9·1 per 1000 annually*, Mr. H. T. Prinsep informs us that the twenty years, from 1809 to 1828 inclusive,

The Madras Civilians lost	23·8	per 1000 of their strength.
The Bengal Civilians	25·1	" "
The Bombay Civilians	31·7	" "

In the invaluable reports on the British Army, Colonel Tulloch, writing on the great mortality on the Sierra Leone command, remarks that "The extent to which vice and intemperance was carried, not only by the troops but other classes also of the white population, may probably have aggravated the evils of the climate; that this, however, could only have contributed in a very minor degree to induce the mortality here recorded is sufficiently proved by what took place among the church missionaries, a class of persons least likely to have been subject to such causes of disease.

"Of 89 who arrived between March, 1804, and August, 1825,

All men in the prime of life there died	54
Returned to England in bad health	14
Returned to England in good health	7
Remained on the coast	14
Total	89

* *Lancet*, vol. ii., 1837-1838. June 23rd, 1838.

"If we assume the number resident in 1825 as the average constantly present during the preceding 21 years, and it is not likely to have been more, the mortality may be estimated at about 17 per centum, though not including the years in which the troops suffered most." (Colonel Tulloch's Reports, Western Coast of Africa, Sierra Leone command, p. 8)

Thus, whatever class of our countrymen be examined, whatever be their circumstances, position or duties, the results obtained are similar, and go far to prove that the chief causes of the increased mortality are not to be sought in their food or drink, dress or lodgings, but in some noxious climatorial influences that they encounter when abroad.

It must, however, on the other hand, be acknowledged that the additional comforts and conveniences of life enjoyed by the richer classes in England, and their more sober and temperate habits, exempt them from many of the evils that shorten the lives of the labouring population, and, in like manner, the difference between the average mortality among the officers and the soldiers of any body of troops would seem to give the measure of the diminution that might be effected among the latter by raising their general material and moral condition to a level with that of their superiors.

There are few authentic documents regarding the mortality which occurs among the higher classes, but that which has been quoted by Colonel Tulloch as affording the best standard with which to contrast the mortality among the military, is the proportion of deaths between the ages of 20 and 40 among the parties insured in the Equitable Office from 1801 to 1832 inclusive; this is stated at 9·1 per 1000 of the insured, annually.

The officers of the British Army being part of the better classes of the country, the mortality amongst them should assimilate in some respect to that ascertained in this insurance office, and, if any importance be attached to better food, clothing, and lodging, the deaths among the officers should be fewer than among the soldiers they command. It was in examining these two points, viz., the comparative mortality among soldiers and officers, and the comparative mortality among officers and men of their own rank in civil life, that the results were obtained which are given in the following tables.

It will be observed that the average mortality among the officers of the army in England and among the parties insured in the Equitable Society is nearly the same.

TABLE I.—GREAT BRITAIN.

	Average Strength.	Total Deaths.	Ratio per 1000 of Mean Strength Diet.
Officers of the Household Troops, Dragoon Guards for 11 years, from 1826 to 1836.....}	700	67	9·57
Officers of the 27th Regiment of the Line on Home Service for 11 years, from 1826 to 1836}	900	110	11·00
Parties in the Equitable Society for 32 years, from 1801 to 1832 .....	....	331	9·10

So that 10 per 1000 annually might be considered as the average rate of mortality among the officers of the army when in England.

But the ratio of deaths among the private soldiers is considerably higher than this, as the following table will show.

TABLE II.

	Average Annual Ratio per 1000 of Mean Strength Died.		Authority.
	Officers, 11 years, from 1826 to 1836.	Troops Generally.	Reports on United Kingdom.
Household Troops for 7½ years, from January, 1830, to March, 1837	9·57	14·5	Page 10
Dragoon Guards and Dragoons 7½ years, from January, 1830, to March, 1837		15·3	„ 7
27 Regiments of the Line serving at home for 11 years, from 1826 to 1836	11·00	....	„ 19
Regiments of the Line in Ireland for 32 years, from 1797 to 1828 .....	....	15·5	„ 33
Depôts of West India Regiments for 7½ years, from January, 1830, to March, 1837 .....	....	18·3	„ 11
Foot Guards of West India Regiments for 7½ years, from January, 1830, to March, 1837 .....	....	21·6	„ 9

I have already observed that the increased mortality which occurs among our English soldiers when on service in the colonies has been erroneously attributed to the misconduct of the men themselves, to errors in their diet, to their intemperance, to want of proper clothing and proper houses; for as the officers may be supposed to be as well clothed, fed, and lodged in the colonies as they are in England, and, being educated men, to be equally temperate everywhere, we ought, if these be the only causes of the greater mortality in the ranks, to find the officers as healthy abroad as when at home. But in our foreign possessions the deaths amongst them have been as follows:—

TABLE III.

	Average Annual Ratio per 1000 of Mean Strength Died.	Authority. — Statistical Re- port on the Sickness, &c., of British Army.
Great Britain. Household Cavalry, Dragoon Guards, and Dragoons, for 11 years, from 1826 to 1836	9·57	Page 19
„ Regiments of the Line for 11 years, from 1826 to 1836	11·0	„ 19
Canada, Upper and Lower, for 17 years, from 1820 to 1836	10·9	„ 41b
Gibraltar, for 19 years	13·5	„ 60a
Cape of Good Hope, for 13 years, from 1822 to 1834	13·8	„ 245
Nova Scotia, New Brunswick, Bermuda, and Newfoundland, for 17 years, from 1820 to 1836	14·0	„ 41b

TABLE III.—*Continued.*

	Average Annual Ratio per 1000 of Mean Strength Died.	Authority. — Statistical Report on the Sickness, &c., of British Army.
Mauritius, for 18 years, from 1818 to 1836	14·7	„ 22c
Malta, for 19 years.....	16·9	„ 60a
Ionian Islands, for 18 years	17·5	„ 60a
Ceylon, for 13 years, from 1824 to 1836	46·	„ 50
„ for 13 years, from 1818 to 1836	46·0	„ 50
Windward and Leeward Command, for 19 years, } from 1818 to 1836.....	42·0	„ 97
Jamaica, for 18 years, from 1819 to 1836	83·4	„ 97
Sierra Leone and Cape Coast Command, for 18 } years, from 1819 to 1836	209·0	„ 24

It is hereby shown that, in the case of the officers as well as of the soldiers of the British Army, service in their native country is less detrimental to health and longevity than in any other, not excepting the much lauded climates of the Mediterranean.

Table II. showed, however, that in England the mortality in the ranks was much greater than that amongst the officers, and it is important to ascertain whether the same disparity exists in our colonies.

The contrast is made in the following table:—

TABLE IV.

		Average Annual Ratio per 1000 of Mean Strength Died.	
		Troops Generally.	Officers.
Great Britain.	Household Cavalry. Troops generally for 7½ years, from 1830 to 1837. Officers for 11 years, from 1826 to 1836.....	14·5	} 9·57
	Dragoon Guards and Dragoons, for 7½ years, from 1830 to 1837. Officers for 11 years, from 1826 to 1836.....	15·3	
„	Regiments of the Line. Troops generally for 32 years, from 1797 to 1828. Officers for 11 years, from 1826 to 1836	15·5	11·00
„	Depôt of West India Corps. Troops generally for 7½ years, from 1830 to 1837. Officers for 11 years, from 1826 to 1836	18·5	....
„	Foot Guards. Troops generally for 7½ years, from 1830 to 1837. Officers for 11 years, from 1826 to 1836	21·6	....
Canada, Upper and Lower.	Troops generally for 20 years, from 1817 to 1836. Officers for 17 years, from 1820 to 1836	20·6	10·90

TABLE IV.—*Continued.*

	Average Annual Ratio per 1000 Mean Strength Died.	
	Troops Generally.	Officers.
Newfoundland. Royal Artillery. Troops generally for 12 years, from 1825 to 1836. Officers for 17 years, from 1820 to 1836	22·0	14·00
Nova Scotia and New Brunswick. Troops generally for 20 years, from 1817 to 1836. Officers for 17 years, from 1820 to 1836	18·0	
Bermudas. Troops generally for 20 years, from 1817 to 1836. Officers for 17 years, from 1820 to 1836	32·3	
Gibraltar. Troops generally for 19 years, from 1818 to 1836. Officers for 19 years.....	22·2	13·50
Cape of Good Hope, Cape District. Troops generally for 19 years, from 1818 to 1836. Officers for 13 years, from 1822 to 1834.....	15·5	13·80
„ Eastern Frontier District. Troops generally for 13 years, from 1822 to 1834. Officers for 13 years, from 1822 to 1834	12·0	
Mauritius. Troops generally for 19 years, from 1818 to 1836. Officers for 19 years, from 1818 to 1836	30·5	14·70
Malta. Troops generally for 20 years, from 1817 to 1836. Officers for 19 years	18·7	16·90
Ionian Islands. Troops generally for 20 years, from 1817 to 1836. Officers for 18 years	28·3	17·50
Ceylon. Troops generally and Officers for 13 years, from 1824 to 1836	54·5	33·20
„ Troops generally for 20 years, from 1817 to 1836. Officers for 19 years, from 1818 to 1836.....	75·0	46·00
Windward and Leeward Command. Troops generally for 20 years, from 1817 to 1836. Officers for 19 years, from 1818 to 1836.....	85·0	42·00
Jamaica. Troops generally for 20 years, from 1817 to 1836. Officers for 18 years, from 1819 to 1836	143·0	83·4
Sierra Leone Command. Troops generally for 18 years, from 1819 to 1836. Officers for 18 years, from 1819 to 1836	483·0	209·00
Cape Coast Command. Troops generally for 4 years, from 1823 to 1826. Officers for 18 years, from 1819 to 1836	668·3	

Although, therefore, it is undeniable that the human race enjoy better health in their own, than in any foreign country, whatever be their rank of life, their duties, or the comforts they possess, yet these advantages do seem, from the above table, to ward off a portion of the

sickness of our colonies, for in some of them, the rate of mortality amongst the officers is not the half of what it is amongst the men, and it affords a good test of the advantages the officers enjoy, and of how much may still be done, by directing attention to the diet, clothing, lodging, exercise, and to the mental and moral improvement of the troops. At the same time, the comparatively high ratio of deaths, universally obtaining, even among the officers when on foreign stations, is a convincing proof that the climates of particular countries exercise the greatest influence over the health of our troops, and whatever benefits the men may derive from a superior class of dwellings, better food, better clothing, and a higher standard of personal morality, the mortality amongst their officers, who are in the enjoyment of all these advantages, is too great to allow us to hope that they will ever compensate for the injurious effects of an unhealthy locality. It can hardly be supposed that the utmost advantages which the Government could bestow on the private soldiers, would exceed those which the officers now enjoy, and therefore it follows, that the health of the officers is at the highest pitch, to which by these means, the health of the ranks could be brought.

The difference between them now, in the colonies enumerated, may be further estimated as follows:—

TABLE V.

		Average Annual Ratio per 1000 of Mean Strength.		
		Of Troops Dead.	Of Officers Dead.	Of Troops that could possibly be saved.
Great Britain.	Household Cavalry	14·5	} 9·5	5·4
"	Dragoon Guards	15·3		
"	Regiments of the Line.....	15·5		
Canada,	Upper and Lower.....	20·0	10·9	9·1
Nova Scotia and New Brunswick		18·0	} 14·0	10·1
Newfoundland.....		22·0		
Bermudas		32·3	....	....
Gibraltar		22·2	13·5	8·7
Cape of Good Hope, Cape District		15·5	} 13·8	0·0
"	Eastern Frontier District....	12·0		
Mauritius.....		30·5	14·7	15·8
Malta		18·7	16·9	1·8
Ionian Islands.....		28·3	17·5	10·8
Ceylon.....		54·5	33·2	21·3
"		75·0	46·0	29·0
Windward and Leeward Command		85·0	42·0	43·0
Jamaica		143·0	83·4	59·9
Western Africa, Sierra Leone Command		483·0	} 209·0	366·6
"	Cape Coast Command.....	668·3		

Tables of the mortality among the officers of our Indian Army have been partially furnished in the returns which have been laid before Parliament, and other sources also supply sufficient information to admit of an opinion being formed as to whether this class are subject to as high rates of mortality in our Eastern empire as have been observed to occur among them in other colonies.

Mr. Edmonds* supplies the following tables, showing the average annual mortality among the officers in each of the Presidencies during the twenty years from 1809 to 1828 inclusive.

TABLE VI.

		Average Mortality per 1000.—Three Presidencies.					
		Béngal.	Madras.	Bombay	Mean Average	Average Living.	Total Deaths.
Native Infantry.	Ensigns	29·5	36·0	33·7	32·6	380	248
„	Lieutenants.....	28·0	43·9	40·5	35·8	1,384	992
„	Captains	34·8	45·3	41·4	39·8	551	438
„	Majors	41·0	48·8	49·8	45·3	130	118
All above Ranks of Native Infantry....		30·5	43·2	40·2	36·7	2,445	1,796
Same of Cavalry and Artillery		21·3	36·1	34·1	28·5	571	326
Ranks higher than Major.....		46·7	49·4	57·5	49·5	293	290
Assistant Surgeons		32·1	44·5	42·9	37·9	383	290
Surgeons		38·4	45·4	40·4	41·3	182	150

Note.—The following table is furnished by M. Quetelet, at the rate per 1000.

RANKS.	Bombay.	Béngal.	Madras.
Colonels	57·4	59·4	54·0
Lieutenant-Colonels	54·5	48·4	61·1
Majors.....	37·7	41·0	54·2
Captains	37·8	34·5	50·2
Lieutenants	39·6	27·5	41·7
Ensigns	31·5	23·4	38·0

and he adds, “the general mean of all ranks, including surgeons and assistant-surgeons was 38·50.

“During the last 20 years, there died of the army of Bengal 1,184 officers, or 59·2 annually, of the average number of 1897 individuals this gives 31·2 per 1000†;” and Captain Henderson give the following numbers as the annual rate of mortality in the three Presidencies:—

Béngal.....	31·2 per 1000
Bombay	39·4 „
Madras	44·9‡ „

If the tables furnished by Mr. Edmonds and M. Quetelet be contrasted with the mortality among the officers in Britain, the climate of our Indian empire will be found to form no exception to that of our

* *Lancet*, 1837—1838, vol. ii. June 23rd.

† M. A. Quetelet on *Man*, 1842, p. 111.

‡ Johnston and Martin on *Tropical Climates*, 1841, p. 41.

other colonies in its unfavourable action on the health of our countrymen.

TABLE VII.

		Officers.
		Average Annual Ratio per 1000 of Mean Strength Died.
Great Britain.	Household Cavalry, Dragoon Guards, and Dragoons	9·5
„	Regiments of the Line	11·0
Bengal Native Infantry up to Major, 20 years, 1809 to 1828		30·5
Bombay Native Infantry up to Major, 20 years, 1809 to 1828		40·2
Madras Native Infantry up to Major, 20 years, 1809 to 1828		43·2

It would appear from this that the causes which exert so injurious an influence on the lives of the officers in other colonies likewise prevail in the East Indies; but from the following table it will be noticed that there is here likewise a great disparity between the mortality of the officers and their men.

TABLE VIII.

	Average Annual Ratio per 1000 of Mean Strength Died.	
	Of Officers.	All Ranks.
Bengal for 20 years. Officers from 1809 to 1828. } Ranks, 1825 to 1844	30·5	73·8
Bombay for 20 years. Officers from 1809 to 1828. } Ranks, 1825 to 1844	40·2	50·7
Madras for 20 years. Officers from 1809 to 1828	43·2	69·7

It may, however, be said that the periods examined in Bengal and Bombay being different for each grade, and the rates of mortality in the three Presidencies being calculated for all the officers of the native troops spread over the whole of India in several hundred cantonments, while the European soldiers in the Company's service are located in at most thirty or forty stations, any fair comparison is thereby rendered impossible; and, certainly, the table just given is open to both objections, but it is in our power to contrast the mortality among officers and men of the same regiments, occupying the same cantonments, and seldom a hundred yards apart from each other; the information being drawn from Dr. Geo. Pearse's Reports on the Madras Army.

TABLE IX.

		Average Annual Ratio per 1000 of Mean Strength Died.	
		Officers.	Troops Generally.
Great Britain.	Household Cavalry.....	9·5	14·5
"	Dragoon Guards and Dragoons.....		15·3
"	27 Regiments of the Line on Home Service	11·0	....
"	27 Regiments of the Line in Ireland	....	15·5
Depôts of West India Regiments	.....	....	18·3
Bangalore,	Hussar Officers for 8 years, from 1830 to 1838. Troopers 9 years, from 1829 to 1838	8·62	25·81
"	H.M. Infantry Officers and Rank and File for 8 years, from 1831 to 1838	27·68	35·47
Trichinopoly.	H.M. Officers and Rank and File 8 years, viz., 1829, 1831, 1833 to 1837, and 1839	22·14	38·00
Moelmayne.	H.M. Infantry Officers for 10 years, from 1829 to 1840. Rank and File 11 years, from 1829 to 1840.....	27·70	27·9
Cananore.	Officers for 13 years, from 1829 to 1841. Rank and File 10 years, from 1829 to 1838	29·0	37·69
Fort St. George	(Madras Fort). Officers for 7 years and Rank and File for 10 years, from 1829 to 1838.....	33·81	43·64
Bellary.	H.M. Infantry Officers and Rank and File, 10 years, from 1829 to 1838.....	48·75	38·84
Secunderabad.	H.M. Infantry.....	51·09	71·68

It is thus apparent that the native of Britain encounters the same or equally noxious influences in India as in other colonies, although it may be confidently stated, that in the times of peace, such as most of the above-mentioned periods, the officers of H.M. regiments who are serving in India possess comforts and conveniences which their comrades enjoy in no other part of the empire, not even in England. Notwithstanding which the deaths amongst the officers of the three Presidencies are three times more numerous than they would be in England, and the mortality in the ranks is proportional.

Some portion of these deaths may, no doubt, be attributable, amongst the officers as well as the men, to the nature of the duties and habits which an active military life requires, but there are still many deaths in excess which no peculiarities can sufficiently account for, and which, whether among officers or men, must be attributed solely to the climate of the locality in which they serve.

To this all-important point, therefore in my view of the subject, though I am far from undervaluing any endeavours for the improvement of the general condition and prospects of the soldier, I trust ere long to see the attention of the proper authorities more especially directed.